Annals of Oncology 16 (Supplement 1): i32–i33, 2005
doi:10.1093/annonc/mdi835

Minimum Clinical Recommendations for diagnosis, treatment and follow-up of malignant pleural mesothelioma

Incidence

- Malignant pleural mesothelioma (MPM) is a rare tumor. The incidence is 1.25/100 000 in UK and 1.1/100 000 in Germany. Within the next 20 years the incidence is estimated to double. Asbestos is a well established etiological factor for MPM, with occupational exposure in 70–80% of those affected.

Diagnosis

- Patients typically present with chest pain or increasing shortness of breath. The diagnosis is usually suggested by imaging studies (unilateral pleural mass; pleural effusion). Occupational history must be obtained.
- Cytological examination of the effusion or pleural biopsy can be diagnostic, but often shows equivocal results. Video-assisted thoracoscopy or open pleural biopsy may be necessary to provide sufficient material. There are three main histological types (epithelial, sarcomatous, and mixed) with about 60% being epithelial.

Staging and risk assessment

- Staging includes complete history, physical examination, and chest X-ray. If local therapy is being considered a CT scan of the chest should be obtained. Accurate initial staging is important as this will provide both prognostic information and suggest the most appropriate therapeutic options. The new international staging system for MPM emphasizes the extent of disease in a traditional TNM system and stratifies patients into similar prognostic categories (see Table 1).
- The Cancer and Leukemia Group B (CALGB) and the EORTC prognostic scores may be used. They include performance status, age, histological type, weight loss, and white blood count.
- MPM rarely metastasize to distant sites but most patients present with locally advanced disease.

Treatment

Surgery

- A variety of surgical procedures have been tried with variable success.
- Extra-pleural pneumonectomy with excision of the diaphragm and the pericardium *en bloc* has the potential of complete removal of the tumor. This approach is generally combined with chemotherapy and/or radiotherapy and should only be attempted by expert surgeons and chest oncology teams *[III, A]*.
- Palliative local procedures include parietal pleurectomy, decortication or pleurodesis.

Radiotherapy

- The use of conventional radiotherapy has been limited because it is impossible to avoid high-dose irradiation of the underlying lung. Conventional dose can be delivered in a palliative attempt. Modern radiotherapy techniques can deliver high dose radiotherapy with curative intent after extra-pleural pneumonectomy. Prophylactic radiotherapy has been shown to reduce the incidence of port metastases *[II, A]*.

Chemotherapy

- Platinum analogues, doxorubicin and several antimetabolites (methotrexate, etatrexate, raltitrexate, pemetrexed) have shown modest single agent activity *[III, B]*.
- Better symptom improvement may be obtained with gemcitabine in combination with cisplatin *[III, A]*.
- The combination of pemetrexed and cisplatin improved survival and quality of life in comparison to cisplatin alone in a randomized trial *[II, A]*.
- Available date indicate a similar management for extra-pleural malignant mesothelioma *[IV, A]*.

Follow-up

- Follow-up consists of clinical evaluation with particular attention to symptoms and chest-CT as needed.

Note

Levels of Evidence *[I–V]* and Grades of Recommendation *[A–D]* as used by the American Society of Clinical Oncology are given in square brackets. Statements without grading were considered justified standard clinical practice by the expert authors and the ESMO faculty.

Table 1.

Stage	TNM	Comments
Ia	T1a N0 M0	Primary tumor limited to ipsilateral parietal pleura
Ib	T1b N0 M0	As stage Ia plus focal involvement of visceral pleura
II	T2 N0 M0	As stage Ia or Ib plus confluent involvement of diaphragm or visceral pleura or involvement of the lung
III	any T3 M0, any N1 M0, any N2 M0	Locally advanced, potentially resectable tumor; ipsilateral, bronchopulmonary or hilar lymph node involvement; subcarinal or ipsilateral mediastinal lymph node involvement
IV	any T4, any N3, any M1	Locally advanced technically unresectable tumor; contralateral mediastinal, internal mammary, and ipsilateral or contralateral supraclavicular lymph node involvement; distant metastases

Literature

1. Peto J, Decarli A, La Vecchia C et al. The European mesothelioma epidemic. Br J Cancer 1999; 86: 1970–1971.
2. Pelucchi C, Malvezzi M, La Vecchia C et al. The mesothelioma epidemic in Western Europe: an update. Br J Cancer 2004; 90: 1022–1024.
3. Sugarbaker DJ, Flores RM, Jaklitsch MT et al. Resection margins, extrapleural nodal status, and cell type determine postoperative long-term survival in trimodality therapy of malignant pleural mesothelioma: results in 183 patients. J Thorac Cardiovasc Surg 1999; 17: 54–63.
4. Weder W, Kestenholz P, Taverna C et al. Neoadjuvant chemotherapy followed by extrapleural pneumonectomy in malignant pleural mesothelioma. J Clin Oncol 2004; 22: 3451–3457.
5. Tomek S, Emri S, Krejcy E, Manegold C. Chemotherapy for malignant pleural mesothelioma: Past results and recent developments. Br J Cancer 2003; 88: 167–174.
6. Senan S. Indications and limitations of radiotherapy in malignant pleural mesothelioma. Current Opinion in Oncology 2003; 15: 144–147.
7. Vogelzang NJ, Rusthoven JJ, Symanowski J et al. Phase III study of pemetrexed in combination with cisplatin versus cisplatin alone in patients with malignant pleural mesothelioma. J Clin Oncol 2003; 21: 2636–2644.
8. Waller DA. The role of surgery in diagnosis and treatment of malignant pleural mesothelioma. Current Opinion in Oncology 2003; 15: 139–143.

Coordinating authors for the ESMO Guidelines Task Force: C. Manegold[1] & R. A. Stahel[2]

[1]Invited author, Thoraxklinik Amalienstr. 5, D-69126 Heidelberg, Germany; [2]Assigned task force member, Div. of Oncology, University Hospital, Rämistr. 100, CH-8091 Zürich, Switzerland

Approved by the ESMO Guidelines Task Force: December 2004.

Correspondence to:
ESMO Guidelines Task Force
ESMO Head Office
Via La Santa 7
CH-6962 Lugano
Switzerland